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R31Femo



Checking Mountain Soil Moisture Under the Snow, an important factor in snowmelt runoff.

Federal-State Cooperative Snow Surveys and Water Supply Forecasts Montana and Northern Wyoming Upper Missouri, Upper Columbia and Yellowstone Rivers

> SOIL CONSERVATION SERVICE UNITED STATES DEPARTMENT OF AGRICULTURE

AND MONTANA AGRICULTURAL EXPERIMENT STATION

In cooperation with the U.S. Forest Service, U.S. Geological Survey, National Park Service, U.S. Bureau of Reclamation, State Engineers of Montana and Wyoming and other Federal, State and local Organizations.

-AS OF-

MAR. 1, 1956

# UNITED STATES DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

TO RECIPIENTS OF COOPERATIVE SNOW SURVEY AND WATER SUPPLY FORECAST REPORTS:

Snow surveys in the West are conducted each year at more than 1200 snow courses. Basin and Province or State snow survey reports summarizing the results of the measurements and forecasts of seasonal runoff and water supply are issued by the Soil Conservation Service, U. S. Department of Agriculture and some of its cooperators; the Water Rights Branch of the British Columbia Department of Lands and Forests; and the California Division of Water Resources.

Copies of the various federal-state cooperative snow survey reports listed below may be secured by writing to:

Head, Water Supply Forecasting Section Soil Conservation Service 209 S. W. 5th Avenue Portland 4, Oregon

#### BASIN REPORTS:

	Colorado, Rio Grande, and Platte-Arkansas River Basins	Issued monthly February through May by SCS and Colorado Experiment Station, Fort Collins, Colorado.*
	Columbia River Basin	Issued monthly January through May by Soil Conservation Service, Boise, Idaho.*
	Upper Missouri River Basin	Issued monthly February through May by SCS and Montana Agricultural Experiment Station, Bozeman, Montana.*
		Issued April 1 by Soil Conservation Service and Cooperators, Portland, Oregon.
ST	ATE REPORTS:	
	Arizona	Issued semi-monthly January 15 through April 1 by SCS and Salt River Valley Water Users Association, Phoenix, Arizona.*
	Nevada	Issued monthly February through April by SCS and Nevada State Engineer, Reno, Nevada.*
	Oregon	Issued monthly January through May by SCS, Portland, Oregon, and Oregon Agricultural Experiment Station.*
	Utah	Issued monthly January through May by SCS, Salt Lake City, Utah, and State Engineer of Utah and Utah Agricultural Experiment Station.*
	Washington	Issued monthly February through May by SCS, Spokane, Washington, and State Department of Conservation and Development.*
	Wyoming	Issued monthly February through May by SCS, Casper, Wyoming, and State Engineer of Wyoming.*
		*Special reports are issued as needed.

The British Columbia reports are issued February 1 through June 1 and may be secured from Comptroller, Water Rights Branch, Department of Lands and Forests, Parliament Buildings, Victoria, B.C.

The California reports are issued monthly February 1 through May 1 and may be secured from Division of Water Resources, California Department of Public Works, Sacramento, California.

The annual water supply forecasts of the Weather Bureau are available in monthly bulletins published from January through May. These bulletins entitled, "Water Supply Forecasts for the Western United States' may be obtained from River Forecast Center, Weather Bureau, 712 Federal Office Building, Kansas City 6, Missouri.

#### FEDERAL - STATE COOPERATIVE

#### SNOW SURVEYS and WATER SUPPLY FORECASTS

for

#### MONTANA AND NORTHERN WYOMING

(Upper Missouri and Upper Columbia River Basins)

Report Prepared by:

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Soil Conservation Service
U. S. Department of Agriculture
and
Montana Agricultural Experiment Station
Bozeman, Montana

Report issued by:

Truman C. Anderson State Conservationist of Montana

M. M. Kelso, Director Montana Agricultural Experiment Station



#### water Supply Outlook as of MARCH 1, 1956

The irrigation water supply in Montana for the \* 1956 season is above average by twenty per cent. **\*** \* The February accumulation of snow has been average \* or better. There should be ample water supply to \* fill all small reservoirs and most of the large ones \* \* to the desired operating capacity. 24. In many sections of the state we have close to \* a record high snow pack. The water content is close \* to the 1948 and 1952 figures. There now exists a \* flood potential from snowmelt as severe as in those -};-\* years, provided snowmelt conditions are similar. 

#### JEFFERSON RIVER:

March first snow surveys over the Jefferson River Basin show an above average water content, except the extreme upper or southern portion of the Rock Creek area. This area is 12 per cent below average in the vicinity of Rock Creek Lakes, Lima Reservoir, and west of Dell. The Horse Prairie area west of Armstead and into the Big Hole and Wise River Basins, are above average by 30 to 40 per cent. The Big Hole River should produce approximately 1,000,000 acre feet between April first through September, or 34 per cent more than the average flow.

## MADISON RIVER:

March first snow surveys show a substantial increase over February measurements. The prospects are for 50 per cent more water than last year and  $2l_1$  per cent more than the average. The flow into Hebgen Lake between April 1 and September 30 should be close to  $2l_16,000$  acre feet or  $12l_1$  per cent average.

## GALLATIN RIVER:

The Gallatin River and its tributaries have an above average snow pack for March first. The present water content figures are 49 per cent greater than last year and 26 per cent greater than the average for over twenty years record. This stream should produce 507,000 acre feet of water from April first through September, or 14 per cent more than average. These figures are considerably above last season's flow of 350,000 acre feet.



#### MISSOURI RIVER MAIN STEM:

Snow survey measurements made on tributaries of the Missouri River on or about March first, show an above average snow pack for the 1956 season. The three main tributaries above Canyon Ferry Reservoir should produce approximately 3,000,000 acre feet during the snowmelt season this year, or 30 per cent more than average. This estimate is 50 per cent higher than last year's flow. The flow into Fort Peck Reservoir is estimated for 5,570,000 acre feet this season or 128 per cent average.

#### UPPER YELLOWSTONE RIVER:

March first snow surveys made throughout this basin indicate an above average snow pack by 43 per cent and 55 per cent greater than last year. The stream flow during April through September is estimated at 2,452,000 acre feet, or 31 per cent above the average of 1,870,000 acre feet for this period of the year. Last year the Provisional Records showed a flow of 1,514,000 acre feet. The estimated flow past Billings is 5,142,000 acre feet for this season, or 28 per cent above average. The estimated flow at Sidney during April through September of this year is 8,366,000 acre feet or 26 per cent above average.



#### COLUMBIA BASIN

#### FLATHEAD RIVER:

Harch first snow surveys show an average increase of 4.3 inches of water content over the February surveys. The present snow pack is 25 per cent above the average. This increase has overcome the apparent deficiency reported in this basin in February. Estimates of probable stream flow from April first through September into Hungry Horse Reservoir are 2,557,000 acre feet or 121 per cent average. Other estimates of stream flow are shown opposite stream gaging stations listed on sheets to follow; they are all above average by 20 to 25 per cent.

#### CLARK FORK RIVER:

The 1956 March first snow pack is above average by 43 per cent. The tributaries to the south along the Idaho boundary have a tremendous snow pack. Stream flow estimates range from 22 to 34 per cent above average. It is anticipated that close to 1,971,000 acre feet of water will pass Missoula during April through September. At the western Montana boundary, near Cabinet Gorge, the Clark Fork River should flow 15,253,000 acre feet of water from April through September or 27 per cent above average.

## FLOOD POTENTIAL

The March first snow pack is very close to the 1948 and 1952 figures. Serious flooding from snowmelt occurred in those years. As a result, there now exists a flood potential over most of the Columbia River tributaries and western tributaries to the Missouri in Montana. The heighth of peak flows will depend upon the several factors producing snowmelt. Spring months of the past few years have been cold and the snowmelt has been retarded. Temperatures and valley precipitation similar to 1948 or 1952 could produce extremely high peak flows during the snowmelt season.



The following summarized runoff forecasts are based principally on mountain snow cover and on the assumption that precipitation and temperature during the forecast period will be near average. Appreciable deviations from normal of precipitation and temperature during the forecast period will correspondingly modify these forecasts.

	Season	nal Stream	-Flow in T	housands o	of Acre Fe	eet
UPPER MISSOURI RIVER	FORECAST	% 15-Yr	FORE-		3.2 2.0	15-Yr.
IN MONTANA	RUNOFF	Avg.	CAST	Measured	Runoff	Avg.
TIA LIOIAT BIAN	ItONOFF	1938-52	PERIOD	1954	1953	1938-52
		1/30-72	11311203	-//-	-///	-/50 /5
RED ROCK RIVER						
Monida (near) (1)	70	86	Apr-Sept	61	72	81
	66	86	Apr-July	55	73	76
BEAVERHEAD RIVER				- (	3.55	3.55
Barrats (at)	137	77	Apr-Sept	96	170	177
	774	78	Apr-July	71	130	134
BIG HOLE RIVER		2.51		د١٦	B) C	916
Melrose (near)	1000	134	Apr-Sept	541	745	745
	925	131,	Apr-July	497	699	687
JEFFERSON RIVER	71.00	7.05	A C 4	622	1006	1046
Sappington (at)	1438	137	Apr-Sept	633 564	921	929
MADISON RIVER	1276	137	Apr-July	504	921	929
	246	124	Ann Sont	219	207	198
West Yellowstone (near)	187	124	Apr-Sept Apr-July	168	158	151
Grayling (near) (2)	524	125	Apr-Sept	421	434	420
(Net inflow to Hebgen Lake		125	Apr-July	333	347	333
McAllister (near) (3)	883	122	Apr-Sept	658	718	726
inchilitister (hear) ())	712	122	Apr-July	521	577	585
GALLATIN RIVER	122	1.66	mpr oury	)22	711	
Gateway (near)	507	114	Apr-Sept	365	403	445
Catoway (Hoar)	437	11/	Apr-July	310	345	384
Logan (at)	566	118	Apr-Sept	322	442	478
_55,000	485	118	Apr-July	261	379	410
MISSOURI RIVER			1 0	4		i
Toston (at) (3)	3003	133	Apr-Sept	1561	2139	2255
, , ,	2541	134	Apr-July	1322	1868	1896
Fort Benton (at) (4)	1,496	133	Apr-Sept	2608	4556	3381
	3790	132	Apr-July	2174	4019	2874
Virgelle (at) (4)	5328	133	Apr-Sept	3395	5864	4013
(Loma)	4548	132	Apr-July	2869	5275	3445
Zortman (near) (4)	5692	131	Apr-Sept	3749	: 6715	4357
	4844	130	Apr-July	3147	6058	3726
Ft.Peck Dam (below) (5)	5573	128	Apr-Sept	3315	5798	4362
	4829	127	Apr-July	2580	5353	3792
						L

<sup>(1)</sup> Observed flow plus change in Storage in Lima Reservoir

(2) Observed flow plus change in Storage in Hebgen Lake(3) Observed flow plus change in Storage in Hebgen and Ennis Lakes

(3) Observed flow plus change in Storage in Hebgen and Ennis Lake(4) Observed flow plus change in Storage in Canyon Ferry

(5) Observed flow plus change in Storage in Canyon Ferry and Ft. Peck Reservoirs (\*\*) Preliminary data furnished by U. S. Geological Survey, subject to correction

(\*) Average is for less than 15 years of record in the 1938-52 period.



	Season	nal Stream	-Flow in T	housands	of Acre F	eet
UPPER MISSOURI RIVER IN MONTANA	FORECAST RUNOFF	% 15-Yr Avg. 1938-52	FORE- CAST PERIOD	Measured 1954	Runoff**	15-Ir. Avg. 1938-52
SUN RIVER Net inflow to Gibson						
Reservoir	690 630	121 121	Apr-Sept Apr-July	748 691	738 681	570* 521*
MARIAS RIVER	660	י סר	Ama Cont	784	933	: . 527
Shelby (near)	660 607	125 119	Apr-Sept	715	871	512
Brinkman (near)	675 622	127 128	Apr-Sept Apr-July	767 700	1025 963	532 486
JUDITH RIVER	40.3	101	Apr-Sept	22.4	38.3	39.8
Utica (near)	36.9	101	Apr-Jept Apr-July	20.4		36.3
MUSSELSHELL RIVER		7.01		2.7	/ 5	/ 0 v
Delphine (near)	8.4 6.9	124 124	Apr-Sept	3.1 2.4	6.7 5.6	6.8* 5.6*
Harlowton (at)	96.7	110	Apr-Sept	26.1	714.2	87.5
Mosby (at)	89.9 184	111 111	Apr-July Apr-Sept		66.1	80.9 166.0
nosby (au)	173	111	Apr-July			155.0
YELLOWSTONE RIVER				1	7/1 ~	7.070
Corwin Springs (at)	2452 2046	131 131	Apr-Sept Apr-July	2014 1686	1645 1362	1870 1556
Livingston (near)	28l <sub>1</sub> 7 2351	133 133	Apr-Sept	2232	1820 1496	2143 1770
Billings (at)	5142 4415	12ઈ 128	Apr-Sept Apr-July	36l <sub>4</sub> 2 3129	3367 2854	4025 3446
Miles City (at)	7963 6814	125 126	Apr-Sept Apr-July	4735 3980	4648 3905	6369 5421
Sidney (near)	8366 7249	126 127	Apr-Sept Apr-July	4765	4716 4053	6648 5724
SHIELDS RIVER						
Wilsall (near)	50.5 47.4	126 126	Apr-Sept Apr-July	29.8 27.6	61.0 58.4	40.1 37.6
Clyde Park (at)	120	113	Apr-Sept Apr-July	65 60	103 122	106
CLARK FORK RIVER			1	1	B	
Chance (at)	700 627	120	Apr-Sept	600	519	580
Edgar (at)	720	121 117	Apr-July Apr-Sept	553 619	1,69 5 <b>2</b> 8	517 614
	631	117	Apr-July	561	467	539
Hyalite Cr.R.S.(at)(7)	34 34	113 113	Apr-Sept Apr-July	32 27	33 29	35 30

<sup>(6)</sup> Observed flow plus change in Storage in Gibson, Willow Creek and Pishkun Res.

<sup>(7)</sup> Observed flow plus change in Storage in Hyalite Reservoir (\*\*) Preliminary data furnished by U. S. Geological Survey, subject to correction. (\*) Average is for less than 15 years of record in the 1938-52 period.



MISSOURI RIVER BASIN YELLOWSTONE RIVER TRIBUTARIES IN WYOMING	Seasc FORECAST RUNOFF	onal Stream   % 15-Yr.   Avg.   1938-52	CAST	Measured	of Acre F Runoff** 1953	15-Yr.
BIG HORN RIVER Boysen Dam(below)(9) Kane (at) St. Xavier (near)(10)	1130 16l10 2l140	120 122 118	Apr-Sept Apr-Sept Apr-Sept	630 696 1226	618 805 1096	9110 13111 2065
POPO AGIE RIVER Riverton (near)	472	125	Apr-Sept		218	378
SHOSHONE RIVER Buffalo Bill Dam(be)(12	2) 1000	128	Apr-Sept		582	780

<sup>(9)</sup> Observed flow plus Storage in Boysen Reservoir (10) Observed flow plus Storage in Boysen

(12) Observed flow plus Storage in Buffalo Bill Reservoir

(\*\*) Preliminary data furnished by U. S. Geological Survey subject to revision. Forecasts prepared by George W. Peak, Snow Survey Supervisor, SCS, Casper, Wyoming.



	Season	nal Stream	-Flow in T	housands	of Acre F	eet
UPPER COLUMBIA RIVER	FORECAST	% 15-Yr.	FORE-			15-Yr.
IN MONTANA	RUNOFF	Avg.	CAST	Measured	Runoff**	Avg.
		1938-52	PERIOD	1954	1953	1938-52
CLARK FORK RIVER	1	7.00		(0)	000	פרז
Bonner (above) (14)	916	122	Apr-Sept	604	808	751
	807	122	Apr-July	512	717	662
	693	122	Apr-June	423	619	566
Missoula (above)	1971	123	Apr-Sept	1737	1887	1662
	1763	123	Apr-July	1535	1695	1429
	1534	125	Apr-June	1248	1435	1229
Missoula (below)	3761	127	Apr-Sept	3309	3158	2971
	3429	127	Apr-July	2979	2879	2700
	3004	129	Apr-June	2385	2370	2335
St. Regis (at)	5035	127	Apr-Sept	4884	4068	3951
	4567	1.28	Apr-July	4408	3698	3582
	3950	125	Apr-June	3574	3051	3157
Plains (near) (15)	13505	1 126	Apr-Sept	14695		10747
	12163	123	Apr-July	13274	10953	9813
	10124	120	Apr-June	10423	9062	8434
Cabinet Gorge (at)(15		127	Apr-Sept	16510		12090
	13885	126	Apr-July	14685		11056
	11782	124	Apr-June	11737	9720	9493
BLACKFOOT RIVER		1				
Bonner (near)	1055	124	Apr-Sept	1126	1078	851
	950	124	Apr-July	1077	977	767
	820	124	Apr-June	819	816	663
BITTERROOT RIVER						
Darby (near)	70L	134	Apr-Sept	523	557	525
	652	134	Apr-July	480	522	<u> 1</u> .87
	573	134	Apr-June	398	429	429
At Mouth (16)	1790	131	Apr-Sept	1725	1201	1369
, ,	1670	131	Apr-July	1598	1184	1270
	1474	133	Apr-June	1396	935	1106
FLATHEAD RIVER						
Columbia Falls (near)	2150	120	Apr-Sept	2741	2049	1796
(North Fork)	1963	125	Apr-July	2444	1875	1575
	1686	125	Apr-June	1874	1540	1350
Columbia Falls (at)(1		123	Apr-Sept	8267	6522	5619
	6452	124	Apr-July	7559	6745	5214
	5655	125	Apr-June		5043	4530
Polson (near) (15)	8108	124	Apr-Sept	9742	7565	6520
	7263	120	Apr-July	8886	7081	6059
	6271	120	Apr-June	6884	5880	5226

<sup>(14)</sup> Difference in observed flow, Clark Fork above Missoula & Blackfoot at Bonner

Observed flow plus change in Storage in Flathead Lake & Hungry Horse Res. (15)

<sup>(16)</sup> (17)

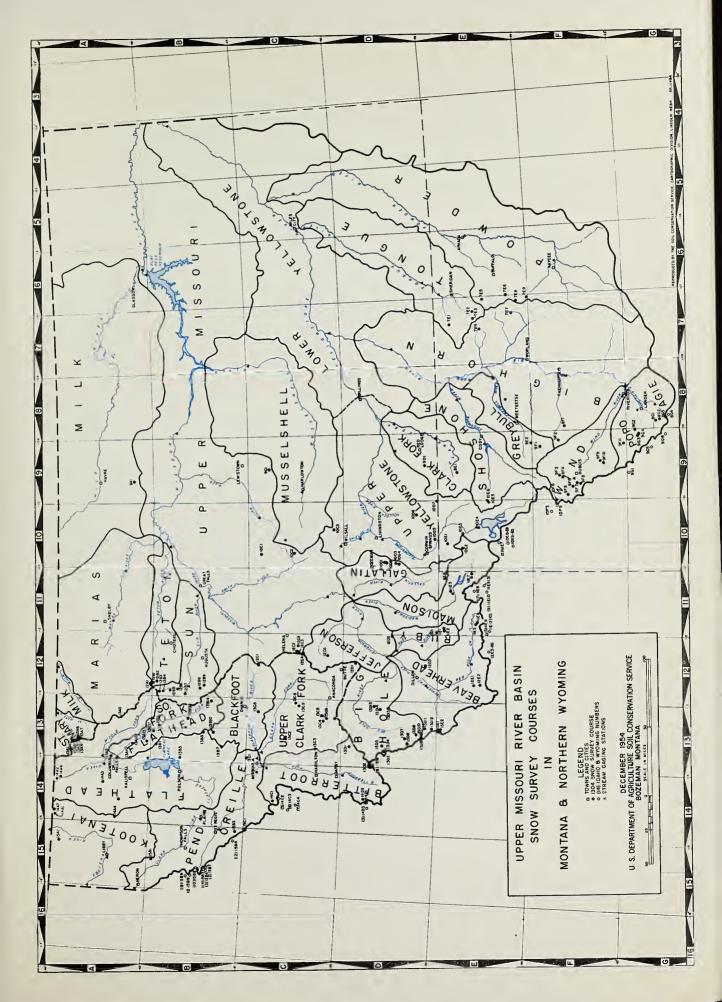
Difference in observed flow, Clark Fork above and below Missoula
Observed flow plus change in Storage in Hungry Horse Reservoir
Preliminary data furnished by U. S. Geological Survey, subject to correction (\*\*)



	Season	nal Stream	ı-Flow in T	housands	of Acre F	eet
UPPER COLUMBIA RIVER	FORECAST	% 15-Yr.			_	15-Yr.
IN MONTANA	RUNOFF	Avg.	CAST		Runoff**	- 0
		1938-52	PERIOD	1954	1953	1938-52
MIDDLEFORK FLATHEAD RIVER						
West Glacier (near)	2004	121	Apr-Sept	2446	2066	1662
· · ·	1859	121	Apr-July	2245	1926	1540
	1595	121	Apr-June	1743	1581	1322
SOUTH FORK FLATHEAD RIVER						
Columbia Falls(near)	(17) 2557	124	Apr-Sept	2852	2277	2058
(Net inflow to Hungry			1			
Horse Reservoir)	2429	124	Apr-July	2693	2171	1950
	2163	125	Apr-June	2173	1846	1724
SWAN RIVER						
Big Fork (near)	744	127	Apr-Sept	676	604	584
	622	128	Apr-July	589		
	551	129	Apr-June	431	416	427
Big Fork (near)	622	128	Apr-July	589	534	584 518 427

<sup>(17)</sup> Observed flow plus change in Storage in Hungry Horse Reservoir (\*\*) Preliminary data furnished by U. S. Geological Survey, subject to correction.





# INDEX TO MONTANA & NORTHERN WYOMING SNOW COURSES

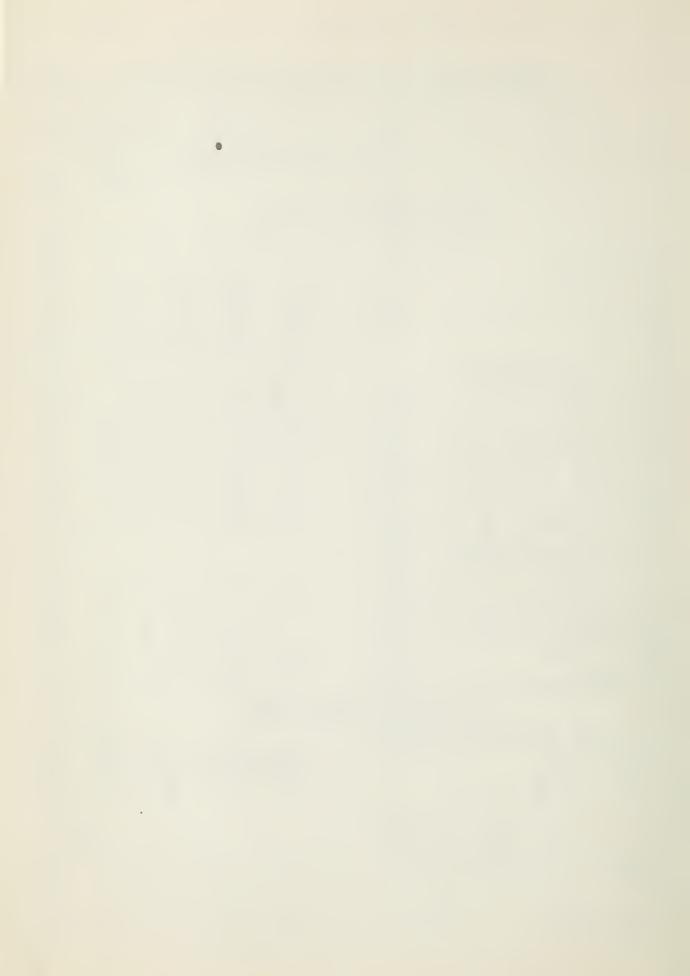
		Loca	tion							Loca	tioo				
Drainage Baein Monta and Course Mana Numbe		Sec. Lat.	<u>2₩</u> ₽•	Ranga Long.	Record Began	Moneying Dates	Measured By: b	Drainage Basin and Course Name	Montana Number	Sec. Elev. Lat.	Σvp.	Range Long.	Record Began	Dates	By: b
(ROCK-SEAVERHEAD)	WII330 U	KI KI	VLK	UKA	1/10[			(POPO AGIE RIVER			,				
Lakeview Ridge 1183 Lakeview Canyon 1184 Limekiln 1252 White Pine Ridge 1281  (RORSE PRAIRIE)	7400 6930 6950 8850	27 26 5 18	145 145 155 145	2V 2W 2V 9V	1948 1948 1948 1948	3,4,5, 3,4,5 3,4 3,4	9 9 1 1	Blue Ridge Granniar Meadows Larsen Craek Sawmill Glado South Pass	662 864 966 861 863	9500 23 9000 19 9000 12 8500 3 9000 13	31N 30N 30N 31N 30N	101w 100w 103w 101w 101w	1939 1936 1948 1939 1939	2,3,4,5 2,3,4,5 3,1,5 2,3,4,5 2,3,4,5	12 12 12 12 12
Rloody Dink   13010   13010   13010   1309   1309   1309   1309   13010   13	7600 8100 7180 6650 7090 6800	12 11 9 14 15 27	85 85 105 95 105 85	16W 16W 15W 15W 15W 15W	1948 1948 1948 1948 1948 1948	3, h 3, h 3, h 3, h 3, h	1 1 1 1 1	(BIG HORN RIVER) Besvers Mill Cel Creok Tonsleep R.S. Timber Creek Ranger Creek	Wyoming 972 671 767 962 764	8900 6 8700 36 8300 30 8800 25 8800 32	43N 43N 49N 47N 53N	1027 1017 868 1037 888	1948 1948 1935 1948 1935	2,3,4,5 2,3,4,5 4,5 4,5	12 12 1 12 1
(SIG HOLE)  Dig Hole Pass Below 13D4 Zent Boundary 13D5 Zent Boundary 13D2 Jahnke Creek 13D8	7400 6900 6700 7100 7340	28 24 22 4 25	3S 3S 3S 2S 7S	18W 18W 17W 19W 16W	1948 1948 1948 1934 1948	3,4 3,4 3,4 3,4 1,2,3,4,5	1 1 1 1,2	Wood River (Shoshone River) East Entrance Sylvan Pase	991 Wyoming 1096 1085	7000 17 7100 12	46N 52N 52N	103W 109W 110W	1939 1948 1936	2,3,4,5 1,2,3,4,5 1,2,3,4,5	12 5 5
Miner forks 1305 Miner Lake 1307  (WISE RIVER)	7300 6720	24 10	6\$ 6\$	17W 16W	1948 1945	3,4,5	1	Big Gooso Burgoss Renger Sta. Dome Lake	7E3	7700 4 7900 36 8800 11	53N 56N 53N	86# 89ज 87च	1945 1950 1950	2,3,4,5 2,3,4,5 2,3,4,5	1 12 12
Anderson Mdw. 13D14 Elk Rorn 13D15 Wiee River 13D13 (RUBY RIVER)	7000 8450 6300	18 15 15	38 148 28	12W 12W 12W	1948 1934 1948	3,4 3,4,5 3,4	1 2 1	Lodgepolo  POWDER RIVER  North Powder	9E1 7B9	8200 32 8500 5	56N 47N	106W	1940	2,3,4,5	1 12
Cottonwood (Upper) 11E1 Flashlight 12D3 Tobacco Root 12D2 Vigilante 11D1	5900 8400 6950 6900 6125	24 30 22 13 28	10s 16s 8s 4s 9s	3vi 2w 7w Lui 3w	1948 1948 1945 1948 1948	3,4 3,4 3,4,5 3,4 3,4	1 1 1 1	Huddy Pees Soldier Park Sour Dough	788 785 786	9700 11 8700 36 8500 17	48n 51n 49n	85W 85W 81W	1950 1950 1936	2,3,4,5 2,3,4,5 2,3,4,5 2,3,4,5	12 1
MADISON RIVER	(560	20	116	19	1021	1 2 2 1 5			COLU	MBIA RI	VER	BASIN			
Hebgen 11E7 What Fellowetone 11E7 Norric Baein 10E2 GALLATIN RIVER	6550 6700 7500	1970 - 175 1970 - 175 155	11S 13S	3E 5E 10°-42'	1934 1934 1935	1,2,3,4,5 1,2,3,4,5 3,4	2 2 5,6	ROOTENAI RIVER Baree Mountain Blue Sird Baein Red Mountain	15R1 14A1 15A1	6000 1 6800 24 6000 4	25n 37n 36n	31W 26W 29W	1937 1937 1937	4,5,5 <del>2</del> 4,5,5 <del>2</del> 3,4,5,5 <del>3</del>	1 1 1
Devil'e Slide 10DL Reed Meadow 10D3 Myetic Lake 10D2 New World 10D1 21-Mile 11F6	8100 6600 6600 6700 7150	11, 22 30 24 1	58 Ius 38 38 115	62 62 72 62 52		2,3,4,5 2,3,4,5 2,3,4 1,2,3,4,5 1,2,3,4,5	2,6 2,6 6,7 6,7 2	Weasel Divide FLATHEAR GIVER Baein Creek Big Creek	1147 13814 1383	5000 11 6750 647	37N 19N 22N	21/W 12W 18W	1955 1951 1961	3,4,5,5\\ 4,5,5\\ 2,3,4,5 3,4,5	1 4
MISSOURI RIVER MAIN SEM Chessman Reservoir 125 Crystel Lake 25 Crystel Lake 102 Klose Hill Ploaie Grounde 1266 Pipestone Pass 1201 Steaple Pans 1201 Tom Mile Cr., Lower 1202 Tom Mile Cr., Lower 1204 (TIOR RIVER)	6200 6100 7000 7950 6500 7200 6900 6250 6800 8000	19 19 35 10 11 16 13	8N 12N 9N 13N 5N 1N 13E 8N 8N 8N	5% 18E 8S 7E 6M 7W 7W 6M 6M 5W	1941 1938 1937 1940 1938 1934 1935	1,2,3,4,5 3,4 3,4,5 2,3,4,5 2,3,4,5 3,4,5 1,2,3,4,5 1,2,3,4,5	2 1,12 2 3 12 2 2 2	Brueh Creek Cattle Queen Desert Mountain Rell Roering Divide Rolborook Kiehenehn Kiehenehn Kiehenehn Jalogan Creek Mariee Pase Spotted Bear Mt. Strauberry Lake Trinkus Lake Trout Lake #2 Upper Rolland Lake	13813 1442 1446 1445 1345 1345 1382 1381 1381 13812	5000 13 1700 7 5600 21 5770 35 1530 18 1300 11 1300 11 1300 31 5250 31 7000 23 6500 11 6500 9 3600 21 7000 28	30N 35N 31N 32N 21N 37N 30N 25N 28N 25N 28N 20N	26W 17W 15W 22W 13W 21W 21W 21W 15W 15W 17W 17W 17W 16W	1937 1939 1937 1942 1951 1954 1954 1937 1934 1948 1948 1948	3,4,5 1,2,3,4,5 1,2,3,4,5 1,2,3,4,5 4,5,5 4,5,5 1,2,3,4,5 1,2,3,4,5 3,4,5 3,4,5 3,4,5 3,4,5	1 1 1 5 5 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1
Preight Creek 12A1 Waldroo Creek 1282 West Fork 1281 (SUN RIVER)	6000 5600 6000	13 16 6	26 พ 25 พ 25 R	10W 9W 9W	1948 1948 1948	3,4 3,4 3,4	1,12 1,12 1,12	Twin Creeke Quintonkon Coyote Rill El Dorado Mine Gold Creek Lake Intergaard	13811 13413 13910 1309 1308 130k	3580 11 3800 11 4200 12 7800 23 7200 14 6450 6	26N 26N 18N 8N 8N 5N	16W 17W 16W 12W 12W 13W	1951 1951 1952 1946 1946 1939	2,3,4,5 2,3,4,5 1,2,3,4,5 4 2,3,4	1 1 1 12 12 3
Benchmark	5500 5400 5600 5300 7000 6800 5700	9 33 36 31 20 17 32	20N 23H 20H 21/R 22N 25N 25R	10W 10W 10W 10W 10W 10W	1948 1949 1948 1949 1934 1949	3, lı 3, lı 3, lı 3, lı 3, lı	1 1 1 2 1	Lubrecht Forest # 6 North Pork Jocko Picnio Orounds Pipestone Pace Slide Rock Mountain Southern Cross Stemple Pase Storm Lake No. 2 Stuart Mill	1387 1206 1201 1302 1305 1301 1307 1306	5400 31 6330 3 6500 10 7200 11 7100 26 6500 8 6900 16 7780 19 6500 19	14n 17n 5n 1n 10n 5n 13n 4n 5n	15W 17W 6W 7W 16W 13W 7W 13W	1951 1941 1940 1938 1937 1939 1934 1939	1,2,3,4,5 3,4,5 2,3,4,5 4 2,3,4,5 2,3,4,5 2,3,4 2,3,4	13 13 1 1,12 3 2 1 3
(MARIAS RIVER) Marios Pase 13A5	5250	34	30N	11/w	1936	1,2,3,4,5	2	Stuart Mountain #1 PEND OREILLE RIVER	1301	7400 6	ТЬN	18W	1936	p.	1,12
(MILK RIVER) Rocky Boy 9Al	5200	15	28N	162	1941	3,4	7	Raree Mountain Pressout Summit #2 Roodoo Creek	1381 15810 1501	6000 1 6800 21 6200 9&16	25n 15n 14n	31W 27W 27W	1937 1951 1937	և,5,5 <u>}</u> և,5 և,5	1 1 1
(MTSSELSHELL RIVER) Graeshopper 1003 (UPPER TELLOWSTONE)	7000	19	97N	88	1938	3,4	1,12	BITTERROOT RIVER  East Fork Ranger St Oibbons Pase Mud Creek Pasture	a. 13D1 13D2 14c1	51,00 16 7100 1, 1,500 21,	2N 2S 11N	17W - 19W 2LW	1937 1934 1937	4 1,2,3,4,5	1,12 -1,12 1
Camp Senia   Spl   Canyon   1083   Cooke City   1007   Crewice Mt.   1005   Independence   1006   Lake Camp   1074   Lupine Creek   1021	7400 8400 8000 7850	2 140-144 • 25 22 22 22 140-34 • 140-51 •	95 95 75	18E 00=30: 11;8 9E 12E 00=21;:	1937 1935 1941 1937	u, 1,2,3,4,5 1,2,3,4,5 3,4 3,4 1,2,3,4,5 1,2,3,4,5	1,12 12 5 1 12 12	Nos Perce Camp Nez Perce Pase Skalkaho Summit	11,D2 11,D1 13C3	5580 19420 6575 32 7259 30	1S 28N 6R	23W 16E 17W	1937 1937 1937	3,4,5 3,4,5 4	1,12 1,12 1,12
(SHIFLDS RIVER)								9	SASKATO	CHEWAN	R۱۱	VER BA	SIN		
Poroupine 10C3  LOWER YELLOWSTONE  (WIND RIVER) Wyoming  Brooks Lake #3 10P8	9200	10	Įtin Įtin	1104	1938	2,3,4,5	1	St. MARY RIVER  Jeaborg Lake Piogan Pass #4 Piegan Pass #6 Nount Alleo #7 Ptarmigan #8	13A3 13A1 13A6 13A7 13A8	6000 48°-50° 5000 48°-46° 6500 48°-45° 7000 48°-44° 5800 48°-50°		113°-42' 113°-42' 113°-40' 113°-40'	1922 1922 1922 1922 1922	5 5 5 5 5	2,8 2,8 2,8 2,8 2,8
Surroughs Creek 9FL 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	8800 10000 9500 8750 8500 10000 9500 9500 9500 8000 8000 8400	15 21 314 27 12 22 24 23 3 26 1 5 29	13N 39N LN LN L2N L1N 2S L1N 2S L2N L1N 2S L2N L1N 2S L2N L1N 2S L1N 2 S N 2 S L1N 2 S L1N 2 S N 2 S L1 N 2 S N 2 N 2 S N 2 N 2 N 2 N 2 N 2 N 2	107m 105m 6m 108m 108m 3m 108m 3m 109m 1m 107m 2m 107m 2m	1948 1948 1940 1940 1940 1949 1940 1940 1959 1940 1940 1948	2.3,4.5 2.3,4.5 2.3,4.5 2.3,4.5 2.3,4.5 2.3,4.5 2.3,4.5 2.3,4.5 2.3,4.5 2.3,4.5 2.3,4.5 2.3,4.5 2.3,4.5	12 12 12 12 12 12 12 12 12 12 12 12 12 1	a. Numerals 1,2,3, b. Numerals refer 1. U.S. Forest So 2. U.S. Goologies 3. Montans Powar ( 4. U.S. Indian Se 5. National Park ( 6. Kontans Experis	to Agodoy t rvice 1 Survey Company rvice Service	hat secures t	the so	7. City of 8. Domici 9. U.S. F10. U.S. E11. Deer L12. Soil C13. Kootan	s follo f Bozam on Wate ish and ureau o odge Ci onserva a State	W 0 g	eau rice cea

## COMPARISON OF SNOW COVER WITH THAT OF PREVIOUS YEARS

Summary of snow survey data by tributary Watersheds March 1, 1956

Courses Averages	No. Years Record	expres	sed as	uivalent 1956 per cent of 15-Yr.Avg. 1938-52
IVER BASIN	IN MONT	ANA		
1, 6 7 3 1	8-15 8 8-15 8-15 11	131 264 208 185 122	129 238 132 127 122	88* 134* 140* 131* 118*
7	11-15	175	130	137*
5	14-15	149	136	126
9	11-15	166	127	123*
3 1 1	8 15 15 <b>1</b> 5	187 186 77 370	76 86 84 150	100* 133 75* 153
			e material material participation of the community	-
1	15	155	149	143
9	4-15	252	134	119*
2 9 7	4-10 4-15 4-15	242 252 167	154 134 127	133* 119* 132*
IVER BASIN	IN MONT	ANA		
11 6 4	7 12-15 9 <b>-</b> 15 15	183 156 172 168	86 98 124 136	128* 125* 137* 139*
	Averages  IVER BASIN  14 66 7 3 1 7 5 9 3 1 1 1 1 9 2 9 7 IVER BASIN  II. 6	Averages   Record	Averages   Record   1955     IVER   BASIN   IN   MONTANA	Averages   Record   1955   1954     IVER   BASIN   IN   MONTANA

<sup>\*</sup>Average includes courses with less than 15 years of record in the 1938-52 period.



MISSOURI BASIN DRAINAGE BASIN AND			Date of	1956 Snow	SNOW CON Water Content	Pa	ASUREN st Rec er Cor	ord	Total Years of
SNOW COURSE	No.	Elev.	Survey	(In.)		1955	1954	-	Record
									•
JEFFERSON RIVER									
(Rock-Beaverhead) Lakeview Ridge Lakeview Canyon Limekiln White Pine Ridge *Kilgore *Camp Creek *Blue Ledge Mine	11E3 11E/4 12E2 12E1 11E12 12E3 11E11	7400 6930 6950 8850 6200 6800 6700	3/2 3/2 2/14 2/14 3/2 2/29	38 45 7 22 31 36	6.9 7.8 1.1 4.5 8.3 8.6	5.7 7.2 1.0 2.8 7.8 5.6	7.9 10.2 0.0 2.7 6.1 8.7	9.0* 11.4* 1.5* 5.1* 9.9 9.2	8 8 8 19 20
(Horse Prairie) Bloody Dick Gold Stone Lemhi Pass Terrell Creek Trail Creek Selway Junction	13D10 13D9 13E1 13D12 13E2 13D11	7600 8100 7400 6650 7090 6800	2/18 2/18 2/15 2/16 2/15 2/16	47 57 39 28 38 39	13.8 18.0 10.5 6.4 9.8 10.4	4.8 6.9 4.4 2.0 4.1 3.9	8.8 11.8 4.7 3.6 4.8 6.0	4.3*	8 8 8 8
(Big Hole) Big Hole Pass Big Hole Pass (B1) East Boundary Gibbons Pass Jahnke Creek Miner Forks Miner Lake *Moose Creek (Wise River)	13D3 13D4 13D5 13D2 13D8 13D6 13D7 13D16	7440 6900 6700 7100 7340 7300 6720 6200	2/19 2/19 2/19 2/27 2/18 2/17 2/17 3/2	57 50 31 81 142 48 37 73	18.2 16.2 8.4 27.2 11.8 14.8 9.9 19.4	10.1 8.2 4.2 14.2 14.3 6.5 3.4 11.3	14.1 12.3 6.2 21.4 8.8 10.2 6.9 15.6	16.3* 13.8* 7.7* 20.4 10.1* 10.5* 7.4* 15.4*	8 8 8 22 8 8 11 18
Anderson Meadow Elk Horn Wise River	13D1l <sub>4</sub> 13D15 13D13	7000 8450 6300	2/20 2/24 2/20	33 44 23	9.3 12.8 5.1	4.5 7.6 2.8	7.6 9.0 5.1	7.7* 8.1 5.2*	8 21 8
(Ruby River) Flashlight	12D3	6950	2/23	20	4.5	3.7	3.7	3.8*	11

<sup>\*</sup>Average is for less than 15 years of record in the 1938-52 period. \*\*Adjacent Basin.



MISSOURI BASIN DRAINAGE BASIN AND SNOW COURSE	No.	Elev.	Date of Survey	,	Water Content (In.)	Pa: Wat	st Rec er Cor	ord	Total Years of Record
MADISON RIVER  Hebgen W. Yellowstone 21-Mile *Big Springs *Island Park *Valley View Norris Basin	11E5 11E7 11E6 11E9 11E10 11E8 10E2	6550 6700 7150 6500 3600 6500 7500	2/28 2/28 2/27 2/27 2/28 2/28 2/27	146 53 69 80 64 57 144	23,8	8.2 7.3 11.1 16.1 12.4 8.3 7.2	10.1 10.3 16.4 20.8 15.5 12.4 9.8	18.3 14.6	22 21 22 20 20 11 13
GALLATIN RIVER  Devil's Slide Hood Meadow Mystic Lake New World 21-Mile	10Dl <sub>4</sub> 10D3 10D2 10D1 11E6	8100 6600 6600 6700 7150	2/26 2/26 Est. 3/3 2/27	60 30 29 36 69	18.5 7.3 7.7 10.3 22.5	12.9 6.3 6.2 8.0 11.1	13.7 5.6 6.0 6.8 16.4	6.9 6.7 8.7	21 21 21 14 22
MISSOURI RIVER MA Chessman Res. Crystal Lake Grasshopper Kings Hill Picnic Grounds Pipestone Pass Stemple Pass Tenmile, Lower Tenmile, Middle Tenmile, Upper	1205 901 1002 1001 1306 1201 1201 1202 1203 1204	6200 6100 7000 7950 6500 7200 6900 6250 6800	2/28 3/3 2/29 2/27 3/1 2/28 2/26 2/29 2/28 2/28	22 37 25 43 26 23 42 31 44 48	5.4 10.2 6.6 9.6 5.6 5.9 10.4 7.5 11.7	2.7 9.5 1.8 8.8 2.2 3.2 5.0 7.4 9.7	12.1	10.4* 4.3 11.3 4.2* 4.2 8.4 5.9 8.6	20 15 18 22 11 18 22 21 22
(Teton River) Freight Creek Waldron Creek West Fork	12A1 12B2 12B1	6000 5600 6000	2/27 2/26 2/26	59 35 53	15.7 8.0 14.7	7.1 3.6 9.8	21.2 9.5 20.0	7.1%	8 8 8
(Sun River) Cabin Creek Gates Park Goat Mountain Wrong Ridge Wrong Creek	12B6 12B5 12B7 12B3 12B4	5400 5300 7000 6800 5700	3/3 3/4 3/1 3/7 3/6	36 49 58 76 59	8.1 11.1 13.2 25.5 16.2	4.1 5.4 7.2 14.1 11.2	9.0 14.7 16.3 27.2 20.4	8.8 21.8*	7 7 22 7

<sup>\*</sup>Average is for less than 15 years of record in the 1938-52 period. \*\*Adjacent Basin.



					SNOW COV	TER MEA	SHREM	TENTS	
MISSOURI BASIN			<u>'</u>	1956	SNOW OO		st Rec		Total
DRAINAGE BASIN			Date	Snow	Water	Wate	er Con		Years
AND SNOW COURSE	No.	Elev.	of Survey	Depth (In.)	Content (ln.)	1955		15-Year Average	of
DHOW COULDE	110.	prev.	Dar vey	(-4-41.0-)	(-111.0)	1777	1774	1938-52	1100014
MISSOURI RIVER MAI	n stem	(Cont'd)							
(ar . D. )					1				is dispersion of the second of
(Marias River) Marias Pass	13A5	5250	3/1	76	20.8	11.2	24.3	15.6	22
(Milk River)									
Rocky Boy (Musselshell)	9Al	5200	3/1	17	3.6	4.7	4.3	4.8*	15
Grasshopper	1002	7000	2/29	25	6.6	1.8	4.4	4.3	18
UPPER YELLOWSTONE									
Canyon	10E3	7750	2/28	64	18.7	10.2	15.1	13.6*	10
Cooke City	10D7	7400	2/29	35	9.6	4.3	9.8	6.7	19
Crevice Mt.	10D5	81,00 7850	3/1	34	7.9	5.2	7.4		
Lake Camp Lodgepole, Wyo.	10E4 9E1	8200	3/1 3/1	59 47	14.2	1	7.5	7·4 <sup>n</sup>	
Lupine	10E1	7300	2/28	47	13.4	9.2	10.5		
**Lewis Lake Div.	10E9	7000	3/1	164	61.3	26.9			
**Astor Creek **Thumb Divide	10E8 10E7	7700 7900	2/29 2/29	125	44.5	20.1	31.0		· 26 · 9
(Shields River)	ו פרויד	7900	2/29	92	22.1	13.0	44.7	10.1	9
Porcupine	1003	6500	3/2	32	7.6	4.9	5.1	5.3	18
LOWER YELLOWSTONE	(Wind R	iver)			1				
Big Warm	9F12	8800	2/24	42	11.3	4.1			1
Brooks Lake	10F8	9200	2/25	80	28.1	14.9		•	19
Burroughs Creek	9F4	0088	2/26	59 1.6	18.1		13.2		7
Dinwoodie Dry Creek	9F10 9F9	10000 9500	2/27 2/27	46 32	13.3	5.0 2.0			7 7
DuNoir	9F6	8750	2/214	37	9.5	3.3			
Geyser Creek	9F7	8500	2/24	35	9.1	3.4	6.9	9.1%	7
Little Warm	9F8	9500	2/24	64		11		19.2*	7
Sheridan R.S. #2 T-Cross Ranch	9F14 9F3	7500 8000	2/25 2/26	36 34	9.4	3.3	7.6		19 15
Togwotee Pass	10 <b>F</b> 9	9600	3/2	108	36.2	2.9	26.3		6
						L			

<sup>\*</sup>Average is for less than 15 years of record in the 1938-52 period. \*\*Adjacent Basin.



MISSOURI BASIN DRAINAGE BASIN AND SNOW COURSE	No.	Elev.	Date of Survey	1956 Snow Depth (In.	SNOW CO Water Content (In.)	Pa: Wate	st Reco er Cont 1954 A	ord	Total Years of Record
LOWER YELLOWSTONE	(Popo	Agie Riv	er)						
Blue Ridge Bruce's Camp Hobbs Park Mosquito Park R.S. Sawmill Glade South Pass St. Lawrence R.S. Trout Creek	8G2 8G5 9G3 9Gl4 8G1 8G3 9F11 9G2	9500 6500 10000 9500 8500 9000 9000 8400	3/1 3/1 2/29 2/29 3/1 3/1 2/28 2/24	50 62 3l <sub>4</sub> 31 56 33 23	16.0 1.0 20.8 9.1 8.5 18.3 9.8 5.6	N.R. 10.3 5.h 7.2 11.7 3.7 4.5	7.7 7.3 14.6 5.5	ourse 19.8* 7.4* 6.0*	7 12 16 16 16
LOWER YELLOWSTONE	(Greyb	ull Rive	r)						
Timber Creek #1 Timber Creek #2 Wood River #1	9E2 9E3 9F1	8800 8800 0008	2/29 2/29 3/1	19 14 22	4.7 2.9 5.2	2.7 2.0 2.8		4.9* 	7 1 4
LOWER YELLOWSTONE	(Shosh	one Rive	r)	The second secon					
East Entrance Sylvan Pass	10E6 10E5	7000 7100	2/29 2/29	44 55	15.2 19.0	7.1 7.0		12.3* 13.3*	7 13
LOWER YELLOWSTONE		d Creek)	,						
Cold Springs Camp Medicine Lodge Lks Munkres Pass(Muddy Onion Gulch Tensleep Lake	7E27 7E27 7E26	8700 9500 9700 8100 9075	3/2 3/2 2/29 2/29 3/1	32 45 41 42	7.0 11.4 9.7 9.9 11.0	N.R.	N.R. New Co	u ourse	1
Tensleep R.S.  LOWER YELLOWSTONE	7E7 (Shell	8300 	3/1	35	7.9	5 <b>.</b> 7 :	!		_
Bald Mountain Beaver-Tongue Div. Bone-Spring Div. Granite Creek Camp Granite Pass Horse-Trail Div. Ranger Creek	7E21 7E20 7E18	9600 9200 9200 7800 8950 9200 8800	2/20 2/19 2/19 3/3 2/19 2/19 3/3	58 58 53 22 53 52 37	16.8 16.7 14.8 5.2 14.6 14.3 9.4		New Co	ourse " " " " "	

<sup>\*</sup>Average is for less than 15 years of record in the 1938-52 period. \*\*Adjacent Basin.



MISSOURI BASIN DRAINAGE BASIN AND SNOW COURSE	No.	Elev.	Date of Survey		SNOW CO' Water Content (In.)	Pa. Wat	st Re	cord ntent   15-Year	
LOWER YELLOWSTONE	(Porcu	oine Cr.	)						
Five Springs Falls Medicine Wheel	7E31 7E30	7500 9000	2/29 2/20	20 46	12.1		New	Course	
LOWER YELLOWSTONE	(Tongue	e River)							
Beaver-Tongue Div. Big Goose #1 Big Goose #2 Bone-Spring Div. Burgess R.S. #2 Dome Lake #1 Dome Lake #2 Gloom Creek Granite Pass Horse-Trail Div. Lake Geneva North Tongue Sibley Lake Sucker Creek Steamboat Point Wood Rock G.S.	7E20 7E2 7E32 7E18 7E33 7E34 7E14 7E17 7E19 7E16 7E15 7E11 7E12 7E10 7E13	9200 7700 7700 9200 7900 8800 8800 9300 8950 9200 9000 8800 8000 9000 7500 8500	2/19 2/24 2/29 2/20 2/23 2/23 2/18 2/19 2/19 2/25 2/20 2/20 2/18 2/18 2/18	58 19 33 53 29 31 35 40 53 52 35 41 36 37 26 38	16.7 4.0 7.6 14.8 6.6 7.8 9.0 11.0 14.6 14.3 8.0 10.0 8.3 9.7 6.6 9.6	1.0 N.R	3. New	Course	5
LOWER YELLOWSTONE	(Powder	r River)							
Grazy Woman Muddy Greek G.S. Munkres Pass(Muddy Onion Gulch Soldier Park Sour Dough	7E29 7E28 7E8 7E27 7E5 7E6	8200 7800 9700 8100 8700 8500	2/29 2/28 2/29 2/29 2/27 2/28	29 23 41 42 35 37	6.5 5.2 9.7 9.9 8.4	N.R N.R		Course	1 4 -

<sup>#</sup>Average of all past data.



	T-Politic Security and the Sale of the Sal	desperation of the second seco	SNOW COVER MEASUREMENTS						
COLUMBIA BASIN				1956	Water	Past Record Water Content			Total Years
DRAINAGE BASIN AND			Date of	Snow Depth			er cor	15-Year	of
SNOW COURSE	No.	Elev.	Survey	(ln.)	(In.)	1955	1954	Average	Record
							- -	1938-52	
						:	1		,
KOOTENAI RIVER (al	ove Lib	by, Mon	itana)	i					
Brush Creek	14A4	5000	2/29	61	15.6	8.4	18.8	13.0%	9
Fernie	Can	3500	3/1	54	→J•C	7.7	15.2	7.6*	16
New Fernie	Can	4100 3800	3/1	67		11.6	22.3	6,5*	5 15
Kimberley Marble Canyon	Can Can	5000	2/29 3/1	47 54	13.1	8.2			9
Nelson Creek	Can	3050	2/29	85		9.6	, 21.3		16
Red Mt.	15 <b>A</b> 1	6000	3/2	74	22.0	10.8		15.6	19
Sinclair Pass	Can	4500	3/1	31	6.5	4.1	8.9		9
Sullivan Mine Upper Elk River	Can Can	5100 4400	3/1 2/26	63 50	17.5	7.5			10 8
Gray Creek	Can	5 <b>10</b> 0	2/28	58	17.0	13.2	23.6	17.4*	. 7
					_,				·
FLATHEAD RIVER		•		!					; !
Basin Creek	13B14	5000	2/28	43	10.6	6.3			5 15
Big Creek	13B3	6750	3/1	112	42.7	28.4	37.5		
Brush Creek Cattle Queen	14A4 13A1	5000 4700	2/29 2/26	61	15.6 32.2	8.4	18.8		9
Coyote Hill	13B10	4200	3/2	47	11.2	7.2	13.2		. 9
Desert Mountain	13A2	5600	3/4	66		10.7	16.6	-	12
Goat Mountain_	12B7	7000	3/1	58	13.2	7.2	16.3		21
Hell Roaring Div.	14A3	5700	2/29	91	27.2	18.8	31.4		6
Holbrook Kishenehn #2	13B13 14A2	4530 4300	2/28 Est.	40 20	10.6	9.8	12.3		5 10
Kishenehn #3	14A6	4,000	2/22	38	8.1	5.6	11.5	1	2
Logan Creek	14A5	4300	3/1	47	11.2	6.1	10.6		9
Marias Pass	13A5	5250	3/1	76		11.2	24.3		22
N. Fork Jocko	13B7	6330	2/28	125	43.9	30.3	42.2	35.9*	15
Quintonkon Spotted Bear Mt.	13A13 13B2	3800 7000	3/1	56	15.6	9.7	15.6	16.9*	5856
Strawberry Lake	13A10	6500	2/28	118		31.5			5
Trinkus Lake	13B1	6500	2/29	119	37.5	28.0	42.6	36.2*	6
Trout Lake		3600	2/28	64		12.1			8 5 6
Twin Creeks	13B11	3580	2/29	47		8.5			5
Upper Holland Wrong Ridge	13B5 12B3	7000 6800	2/29	132	32.5	23.8	36.9 27.2		7
						l .		1	:

<sup>\*</sup>Average is for less than 15 years of record in the 1938-52 period.



To remove the second									
COLUMBIA BASIN DRAINAGE BASIN AND SNOW COURSE	No.	Elev.	Date of Survey	/ ~ `	Water Content (In.)	Pa Wat	st Rec er Con	ord	Total Years of Record
UPPER CLARK FORK  Chessman Res. Coyote Hill El Dorado Mine Fish Lake, Idaho Gold Creek Lake Intergaard  **Lookout Lubrecht Forest #6 North Fork Jocko Picnic Grounds Pipestone Pass Southern Cross Stemple Pass Storm Lake #2 Stuart Mill Tenmile, Lower Tenmile, Middle Tenmile, Upper TV Mountain  **49 Meadows	1205 13B10 1309 21Bl <sub>4</sub> 13C10 13Cl <sub>4</sub> 15B2 13C8 13B7 12C6 12D1 13C5 12C1 13C7 13C6 12C2 12C3 12Cl <sub>4</sub> 14B1 15B3	6200 1,200 7800 5000 7200 61,50 5250 51,400 6500 6500 6500 6500 6500 6800 6800 68	2/28 3/2 2/25 2/25 2/25 3/1 3/1 2/28 3/1 2/28 3/1 2/26 2/24 3/1 2/29 2/28 2/28 2/19 3/1	22 47 65 54 33 150 24 125 26 23 26 42 51 29 31 44 48 69 130		7.2 11.8 33.6 4.2 22.8 9.3 2.2 30.5 7.7 8.5 7.4 9.7		1.3 9.8*  6.2 30.7  35.9* 4.2* 4.6 8.4  5.2 6.3 8.6 11.2	20 9 3 4 3 20 31 5 15 11 18 20 22 3 20 21 22 21 16
East Fork R. S. Gibbons Pass Nezperce Pass Nezperce Camp *Moose Creek Powell R. S. Lolo Pass	13D1 13D2 11µD1 11µD2 13D16 11µC6 11µC6	5400 7100 6575 5580 6200 4230 5300	3/2 2/27 3/1 3/1 3/2	40 81 66 66 73		13.4	21.4 14.4 11.4 15.6	11.1%	5 22 17 16 18
PEND OREILLE Hoodoo Creek	1501	6200	2/29	169	59.6		63.4	47.6%	; <u>1</u> 4

<sup>\*</sup>Average is for less than 15 years of record in the 1938-52 period. \*\*Adjacent Basin.



BASIN	USABLE	THOUSAND ACRE FEET IN STORAGE ABOUT MARCH FIRST 15-Yr.Avg						
& STREAM	RESERVOIR	CAPACITY 1000's AF	1956	1955	1954	15-1r.Avg		
Olitari I	TEMORITO III	1000 3 M	1 1//00	1 -1//				
MISSOURI RIVER B	ASIN		American de la Principa de la Princi					
Beaverhead Madison River Madison River Hyalite Creek Missouri River Missouri River Missouri River Missouri River Missouri River Missouri River N.Fk. Sun River N.Fk. Sun River N.Fk. Sun River Birch Creek Dupuyer & Birch Marias River Judith River Missouri River Milk River Milk River W. Rosebud Cr. Red Lodge Cr. Tongue River Swiftcurrent Cr.	Swift Lake Francis Tiber Res. 1 Ackley Lake Ft. Peck 19 Fresno Nelson Mystic Lake Cooney Tongue River	1,1.00  401.70  na 62.50  10.15  81.92  105.00  32.30  32.00  30.00  112.00  316.00  5.82  ,000.00  127.20  66.80  20.80  27.50  73.90		38.05 5.48 1,177.0 63.75 10.89 77.21 68.98 25.32 19.16 29.12 95.83 New Re	26.95 20.46 24.76 92.26	226.81 33.32  41.8* 8.4* 53.2 64.3 13.7 15.5 21.9 74.4 4.4* 10,293.0* 68.9* 29.0 6.3 12.5* 19.6*		
MISSOURI RIVER B	ASIN - WYOMING							
Shoshone River Wind River Wind River Bull Creek Belle Fourche	Buffalo Bill Boysen Pilot Butte Bull Lake Key Hole	408.60	122.1 13.1 14.6 62.3 19.6	139.7 315.4 14.7 63.1 4.8	153.2 361.9 12.0 76.8 8.7	264.6 122.0* 14.5* 56.5*		
MISSOURI RIVER B	ASIN - NORTH D	AKOTA						
Heart River Heart River Missouri River	Heart Butte Dickerson Garrison IK 18	54.80 4.3 ,100.0	45.0 2.6 853.0	56.8 4.3	56.2 5.7			
MISSOURI RIVER B	ASIN - SOUTH D	AKOTA						
Cheyenne River Grand River	Belle Fourche Angostura Deerfield Shadehill Ft. Randall 4	160.00 15.1 84.00	78.2 74.9 9.9 70.1 1,453.8	58.2 33.5 10.5 75.9	109.1 31.0 15.4 82.3	102.9% 44.0 13.5%		



### STATUS OF RESERVOIR STORAGE MARCH 1, 1956

BASIN & STREAM	RESERVOIR	USABLE CAPACITY 1000's AF	THOUS	SAND ACRE F ADOUT MAR 1955	CH FIRST	DEAGE 15-Yr.Avg. 1938-52
COLUMBIA RIVER BAS Flint Creek S.Fk. Flathead Flathead River Flathead River 6/ Flathead River 7/ Jocko Creek	Georgetown Lk Hungry Horse Flathead Lake Camas Res. Mission Valle Lower Jocko I	3,500.00 21,791.00 42.80 29 98.60	2,595.0 858.0 34.3 35.4	20.1 2,155.0 710.0 39.5 57.2	20.4 1,946.0 616.0 23.4 20.6	20.2*  595.5* 19.7* 40.7*

<sup>6/</sup> Camas Reservoirs are shown as a sum of (4) small reservoirs on the west side of Flathcad Lake located on Dry Creek and Little Bitterroot River.

<sup>7/</sup> Mission Valley Reservoirs are shown as a sum of (8) small reservoirs located south and east of Flathead Lake. Both Camas and Mission Valley reservoirs are operated by the Indian Irrigation Service.

<sup>\*</sup> Average is for less than 15 years of record in the 1938-52 period.





# Federal - State - Private COOPERATIVE SNOW SURVEYS

Furnishes the basic data necessary for forecasting water supply for irrigation, domestic and municipal water supply, hydro-electric power generation, navigation, mining and industry

"WATER IS THE WEST'S GREATEST RESOURCE"